NATIONAL PHOTOGRAPHIC
INTERPRETATION CENTER

☰III CONVERSION OF GROUND RESOLUTION TO SYSTEM RESOLUTION

$$R_s = \frac{H}{(F)\,(GR)\,(25.4)}$$

R_s = SYSTEM RESOLUTION (CYCLES/MILLIMETER)

H = VEHICLE ALTITUDE ABOVE GROUND (FEET)

F = CAMERA FOCAL LENGTH (INCHES)

GR = GROUND RESOLUTION BAR & SPACE (FEET)

25.4 = CONVERSION FACTOR (INCHES TO MILLIMETERS)

EXAMPLE:

H = 81,000 FEET

F = 18 INCHES

GR = 1.3 FEET

$$R_s = \frac{81{,}000 \text{ FEET}}{18 \text{ INCHES X } 1.3 \text{ FEET X } 25.4 \text{ M.M./INCH}}$$

R_s = 136 CYCLES/MILLIMETER

NOTE: *GR IS BAR PLUS SPACE, CORRESPONDING TO LINE WIDTH AND SPACE ON THE FILM, AT THIS RESOLUTION AND CONTRAST, THE SIZE OF THE SMALLEST OBJECT ON THE TARGET DETECTED IS* $\dfrac{GR}{2}$

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C........ N-1243 (11/68)
C........ SECRET
.... CONVERSION OF GROUND
RESOLUTION TO SYSTEM RESOLUTION
.... TSSG/DPSD
D:........ (11/68)

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